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Understanding the Macroeconomic Impact of Migration in Malta

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Policy Note

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Abstract

This paper tries to evaluate the macroeconomic impact of increased economic migration to Malta. Administrative data show that the proportion of foreign workers has risen from 1.3% of the total workforce in 2000 to 10.1% in 2014. In the absence of immigration, the working age population would have shrunk slightly, instead of rising by 3% since EU accession. While the bulk of these migrants are in managerial, professional and technical occupations, there are a growing number of foreign workers in elementary occupations and in clerical and support duties. Dependence on migrant workers is quite concentrated, with half of the entire workforce in entertainment & recreation, professional services & administrative support and in hotels & restaurants. While evidence of the impact of the influx of foreign workers on wages is mixed, this note suggests that their economic contribution has been significant. In the period 2010 to 2014, they contributed annually to 0.6 percentage points of potential output growth, while their share in total personal income tax and national insurance contributions rose by 3.4 percentage points.

JEL Classification: F22, J61, O15.

Keywords: Migration, Potential output, Malta.

Table of Contents

Abstract.....	2
Executive Summary	4
Has economic migration to Malta increased over time?	6
What are the characteristics of foreign workers in the Maltese economy?.....	11
What is the contribution of foreign workers to the Maltese economy?	16
References	22

Executive Summary

In recent years, the Maltese economy has had a significant influx of migrant workers, mostly EU citizens. This has coincided with a rapid expansion of the islands' economy and the emergence of new services sectors. Understanding the impact that migration has had on recent economic developments is thus important to assess correctly Malta's macroeconomic performance. Consequently, this note attempts to answer three questions:

- **Has economic migration to Malta increased over time?**

For most of its history, Malta has experienced considerable emigration. Since 1980 these flows were reversed, first through return migration and then by immigration from non-EU countries. Following EU accession, the rise in foreign workers picked up considerably, with most of the flow coming from EU countries. Since 2004 the number of EU nationals working in Malta has trebled, to nearly 15,600 in 2014. In addition in that year there were approximately 6,200 third-country nationals also working in Malta, or four times the amount present in 2004. In the absence of immigration, the working age population would have shrunk by 1%, instead of rising by 3%. At 10.1%, the share of the foreign workforce in the Maltese economy slightly exceeds the proportion observed across the EU, but is slightly below that in neighbouring Italy, and half that in Cyprus. Job creation has been nearly equally divided between Maltese and foreign workers in the period 2010 to 2014. The rising share of the foreign workforce should not be misconstrued as evidence that foreigners are crowding out Maltese workers. In fact, the increase in employment for Maltese nationals between 2010 and 2014 was nearly double that in the preceding four year period. The evidence seems to indicate that the rising demand for labour by Maltese industries is too strong to be serviced by the supply of Maltese workers, even when the latter is expanding quite strongly due to a rapid rise in female participation.

- **What are the characteristics of foreign workers in the Maltese economy?**

Foreign workers differ from Maltese workers in a number of important characteristics. Quite interestingly, gender composition is not one of them. In 2014 women held about 40% of jobs, irrespective of nationality. The foreign workforce is very heterogeneous, with managers and those employed in elementary occupations together amounting to nearly a third of all foreign workers, nearly double the combined share of these occupational categories amongst Maltese workers. While managerial, professional and technical occupations still dominate the foreign workforce, there has been a very strong growth in the number of foreigners engaged at the lower end of the labour market. The data suggest that reliance on foreign

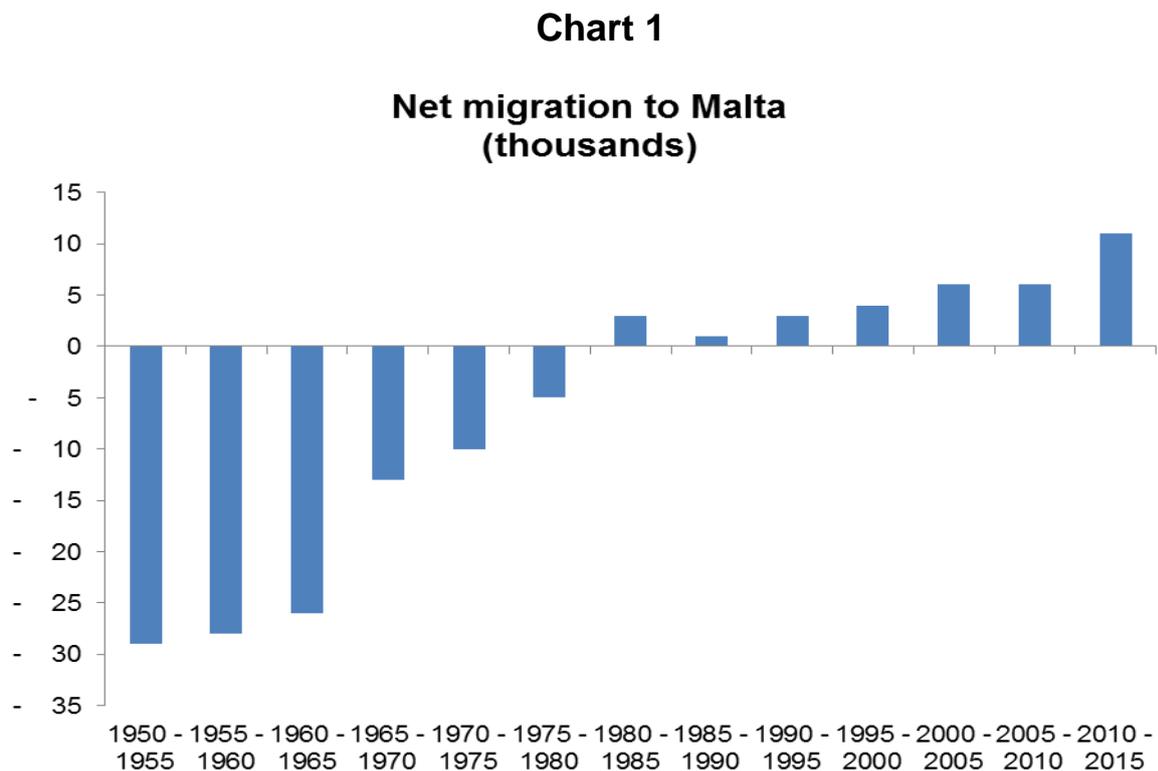
managers, professional and technical staff rose to 12.1% by 2014, while dependence on foreign workers in elementary occupations and in clerical & support duties grew to 14.1%. Higher demand for foreign workers in high-end occupations has occurred despite a rise of nearly a third in the number of Maltese engaged in these activities. Conversely the number of Maltese in elementary occupations and in clerical & support duties has declined. Hence demand for foreign labour seems to have been fuelled by two factors: relative scarcity of skilled Maltese workers at the high end of the labour market and decreased availability of Maltese for lower-end jobs. The sectoral composition of the foreign workforce also differs significantly from that of native workers. Industry and the public sector are dominated by the Maltese, whereas half of foreign workers are employed in entertainment & recreation, hotels & restaurants, and professional services & administrative support. Dependence on migrant workers amounts to nearly 29% of the entire workforce in entertainment & recreation, 23% in professional services & administrative support and 21% in hotels & restaurants.

- **What is the contribution of foreign workers to the Maltese economy?**

The availability of skilled foreign workers has helped the development of new industries, which otherwise would be bottlenecked by skills shortages. These new sectors, in turn, led to a more diversified economy, less subject to industry-specific shocks and to cyclical fluctuations. On the basis of a number of assumptions, such as that firms would not have been able to respond to higher demand by employing Maltese workers and that foreign workers have the same productivity as Maltese staff, we estimate that foreign workers have contributed significantly to boost potential economic growth. In the years before the downturn of 2009, foreign workers boosted average annual potential GDP growth by 0.5 percentage points, and by 0.6 percentage points between 2010 and 2014. Besides the supply side impact of foreign workers, another important consideration is their effect on wages. While the rise in the share of foreign workers between 2010 and 2014 coincided with a drop in wage growth, the latter is similar to that experienced between 2002 and 2006, when the rise in foreign workers was much more muted. Sectoral developments are also difficult to interpret. Interestingly tax data seem to suggest that growth in the per capita remuneration of foreign workers has declined over time, possibly reflecting the growing share of lower-end occupations. Despite this, the growth in the number of foreign workers has meant that in 2014 they contributed to 10.1% of total revenue from personal income tax and national insurance contributions, up by 3.4 percentage points from 2010.

Has economic migration to Malta increased over time?

As Chart 1 shows, historically Malta has been characterised by strong net outward migration. Between the late 1940s and the beginning of the 1980s a substantial part of the Maltese population sought its fortune overseas. In fact, a United Nations study carried out around the time of independence (Stolper, Hellberg & Callender, 1964) had recommended mass emigration as “the only feasible solution in the long run” for the economic development of Malta.² The subsequent very rapid expansion of the Maltese economy³ led to a growing demand for labour which dampened the incentives for Maltese to emigrate and, in fact, led many former Maltese emigrants to return to their home country. Thus the Maltese islands became recipients of net inward migration. The amount of non-Maltese inward migration remained quite low and a significant number of these were people who came to retire in Malta, with limited economic activity on the islands.



Source: Author’s calculations using the UN population database and Eurostat.

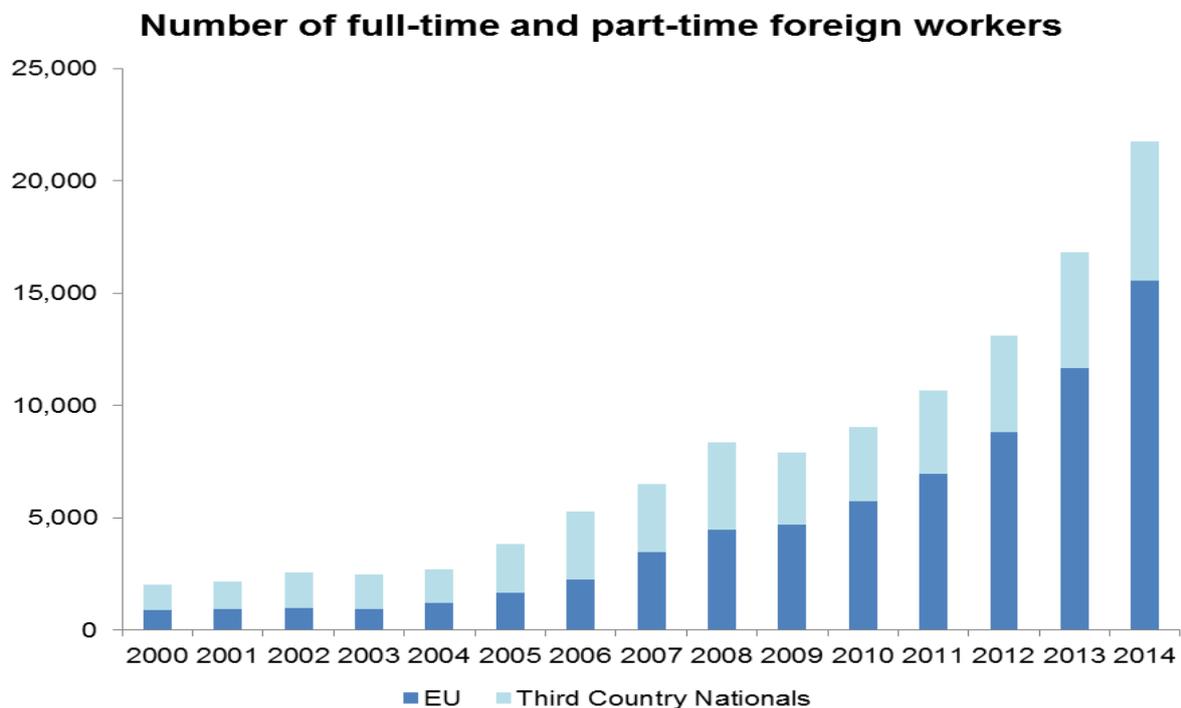
In this note, the focus will be on economic migrants of working age, whose presence started to become noticeable only in the 2000s. Employment and Training Corporation (ETC) administrative data indicate that in 2000 there were 898 EU (and EEA) citizens working full-

² Delia (2006) includes a number of economic studies of Maltese emigration.

³ See Grech (2015a) for more details.

time and/or part-time in Malta. This was significantly smaller than the amount of third-country nationals working in Malta at that time, 1,115. By the time of Malta's accession to the EU, the number of third-country nationals employed in Malta had risen to 1,514 and still outnumbered the 1,188 EU workers. Just three years after, this had changed, and EU workers started to outnumber those from other countries. The number of foreign workers declined slightly in 2009 as a result of the economic downturn, just like it had done before EU accession when the Maltese economy was restructuring. After this short interlude, the size of the foreign workforce showed an ever-increasing annual rate of growth, from 14% in 2010 to 29% in 2014.

Chart 2



Source: Administrative data provided by ETC.

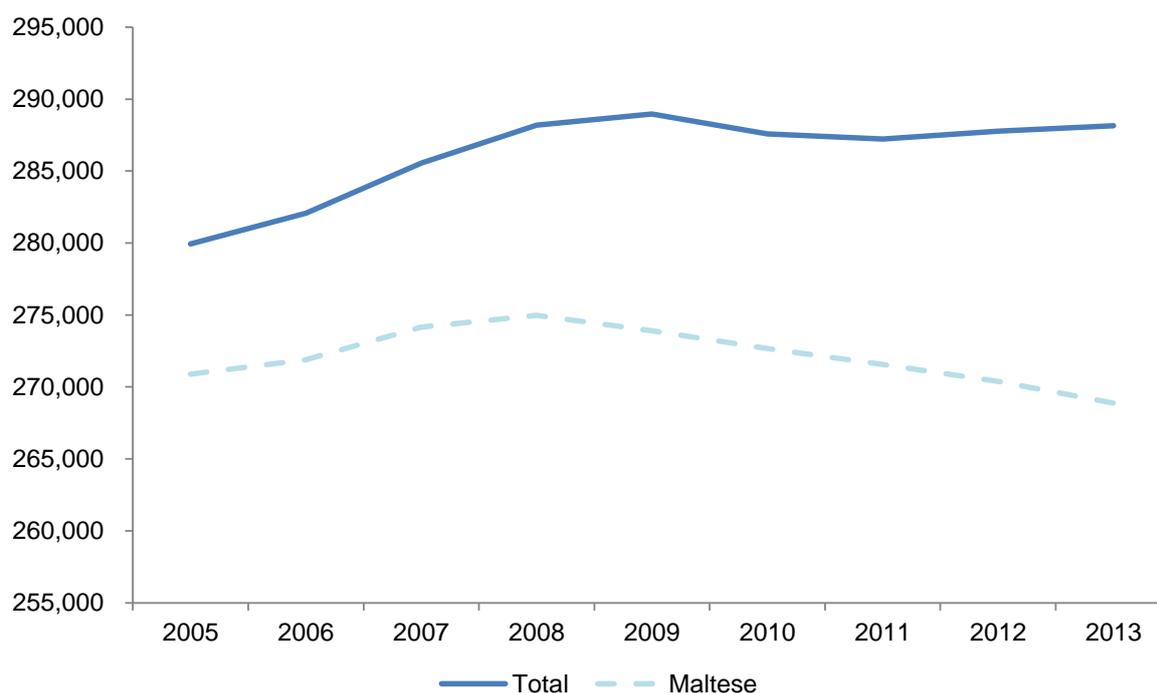
This impressive growth was principally fuelled by EU citizens, with their number more than trebling to 15,552 by 2014. Even though the number of third-country nationals doubled over this period, by 2014 they amounted to 6,190 or just 28% of the foreign workforce in Malta. Just before EU accession their share had peaked at 63%.

ETC data suggest that the number of jobs held by foreign workers in Malta has risen from over 2,000 in the year 2000 to about 2,700 in 2004, to just over 9,000 in 2010 and to 21,740 in 2014 (see Chart 2). Given the substantial rise implied by these data, we benchmarked them with administrative data from the Inland Revenue Department. The latter suggest that

in 2000 there were 5,000 foreign employees paying tax, rising to 5,500 in 2004, to 13,400 in 2010 and to 25,300 in 2014. While there is a difference in the absolute numbers of foreign workers according to these two sets of data, the change in the number of foreign workers since EU accession is quite similar. ETC data show an increase of close to 19,000, whereas Inland Revenue Data suggest a rise of 19,800. To give an idea of how substantial this influx was, one only needs to consider that in the first decade after EU accession the number of Maltese who turned 16 and thus completed mandatory schooling amounted to around 51,500. This would not have covered the number of Maltese who reached pension age during this period, which was close to 56,000. As shown in Chart 3, in the absence of immigration, Malta's working age population would have declined, by 1%, instead of rising by 3%. The proportion of working age persons who are non-Maltese has risen from 3% in 2005 to 7% in 2013.

Chart 3

Malta's Working Age Population since EU accession



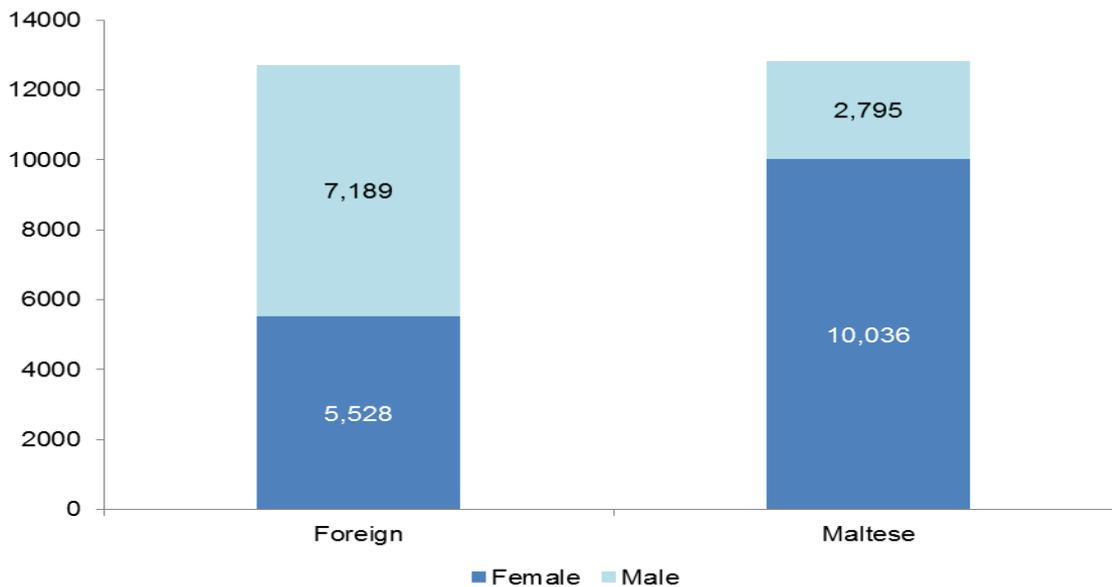
Source: Author's calculations using NSO Demographic Reviews.

Immigration has contributed greatly to accommodate the rising demand for labour in Malta. ETC data suggest that between 2010 and 2014 the number of full-time and part-time jobs rose by 25,550, or 13%. The increase was nearly equally divided between Maltese and foreign workers. Interestingly there is a clear gender gap between the two categories, as can

be seen in Chart 4. While Maltese women took up nearly 80% of the increase in jobs for Maltese workers, the bulk of jobs taken up by foreigners were taken up by men. This may be explained by the fact that whereas about 77% of the rise in the number of jobs done by foreigners was full-time, only 52% of all additional jobs for Maltese were full-time.

Chart 4

**Change in employment:
Maltese and foreign workers
(2010 to 2014)**



Source: Author's calculations using ETC administrative data.

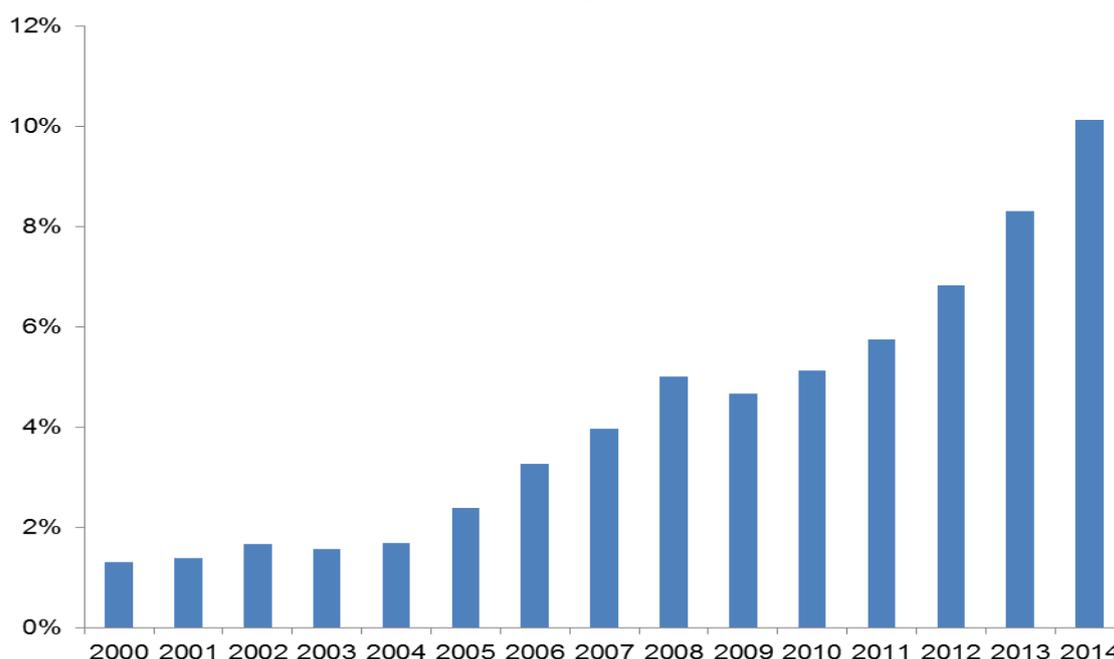
Chart 5 (see below) shows that the share of foreign full-time workforce has expanded very significantly since EU accession. Until then, the increase in the foreign workforce was relatively moderate, from 1.3% in 2000 to 1.7% in 2004. By 2008, this share had more than doubled to 5%. This share then remained unchanged till 2010, as the economic downturn seems to have been more sharply felt by foreign employees. Whereas the employment of Maltese citizens continued relatively unabated during 2009, the employment of foreigners fell by 7%, mostly among third-country nationals. The economic recovery led to renewed demand for foreign workers, to the extent that by 2014 their share had doubled again to 10.1% of the total workforce. Income tax administrative data also suggest that the share of foreign employees has increased by 5 percentage points since 2010.

It is important to note that this growing share has occurred despite the fact that the rise in the Maltese workforce between 2010 and 2014 was very high by historic records. Between 2004

and 2008, the Maltese full-time workforce had risen by under 5,500, as against the rise of nearly 10,000 observed between 2010 and 2014. The rising share of the foreign workforce should not be misconstrued as evidence that foreigners are taking up the place of Maltese workers. The data seem to indicate that what is happening is that the rising demand for labour by Maltese industries is too strong to be serviced by the supply of Maltese workers, even when the latter is expanding quite strongly due to a rapid rise in female participation.

Chart 5

Share of foreign workforce



Source: Author's calculations using ETC administrative data.

Labour Force Survey data indicate that across the EU, the share of foreign workers ranges from less than 1% in Poland and Hungary to over 50% in Luxembourg. The estimate provided here⁴ puts Malta above the EA average (8%), and slightly below Italy (10.3%) and Spain (10.6%). The importance of the foreign workforce in Cyprus in relative terms (over 19%) is about double that in Malta, mostly on account of a higher incidence of third-country nationals working there. Even in Italy and Spain the bulk of migrant workers are from non-EU countries. This is not the case in Malta, where most migration is from the EU.

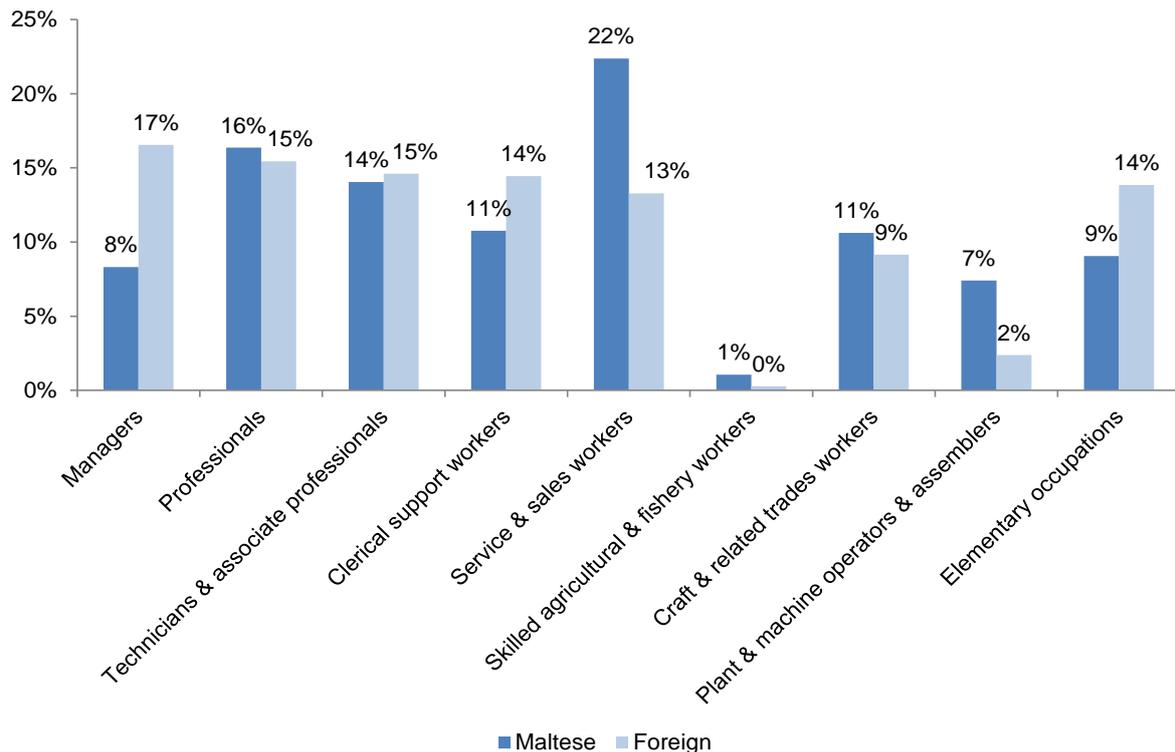
⁴ An ad-hoc module of the Labour Force Survey published by the NSO in 2015 suggests a smaller share of economically active migrants (at 8.7% in 2014). However the module defines migrants as persons who did not reside in Malta for at least one year, thus differing from the administrative data used here which are based on citizenship. It also excludes those living in collective or institutional households.

What are the characteristics of foreign workers in the Maltese economy?

Foreign workers differ from Maltese workers in a number of important characteristics. Quite interestingly, gender composition is not one of them. In 2014 women held about 40% of jobs, irrespective of nationality. However, part-time work appears to be less prevalent amongst foreign women, with only 22% employed on a part-time basis as against 33% for Maltese women. This difference is observed also amongst men, with 22% of Maltese men holding a part-time job as against 13% of foreign workers. Note however that there are restrictions on part-time employment of third-country nationals, which could explain this difference.

Chart 6

Share of workforce by nationality and occupation



Source: Author's calculations using ETC and LFS data.

As can be seen in Chart 6, the foreign workforce is quite heterogeneous in terms of its occupational composition. The probability that a foreign worker is a manager is more than twice the same probability for a Maltese. Similarly, the odds that a foreigner is employed in an elementary occupation are one and a half times that for the average Maltese. This is in

line with the perception that foreign workers are employed at either end of the labour market – the higher end where skills are scarce and the lower end where jobs are no longer that attractive for Maltese workers. While some occupations, such as service and sales workers and plant and machine operators, are clearly dominated by Maltese workers, there are others where the relative importance is similar.

The composition of the foreign workforce has changed significantly. While in 2000, nearly three quarters of foreign workers were managers, professional and technical staff; by 2014 this had fallen to less than a half. This occurred despite the fact that the absolute number of foreign managers, professional and technical staff rose from 1,400 in 2000 to over 8,400 in 2014. On the other hand, the proportion of the foreign workforce engaged in elementary occupations and in clerical & support duties rose from 7.5% in 2000 to 28.3% in 2014. These two trends for foreign workers, a declining share of higher-end and a rising proportion of lower-end occupations (see Chart 7), differ from those observed amongst Maltese workers. Here the proportion of managers, professional and technical staff has risen from 32.5% in 2000 to 38.7% in 2014, while that of those engaged in elementary occupations and in clerical & support duties has fallen from 24.6% to 19.8% in the same period.

Chart 7

Share of selected occupations within the foreign workforce

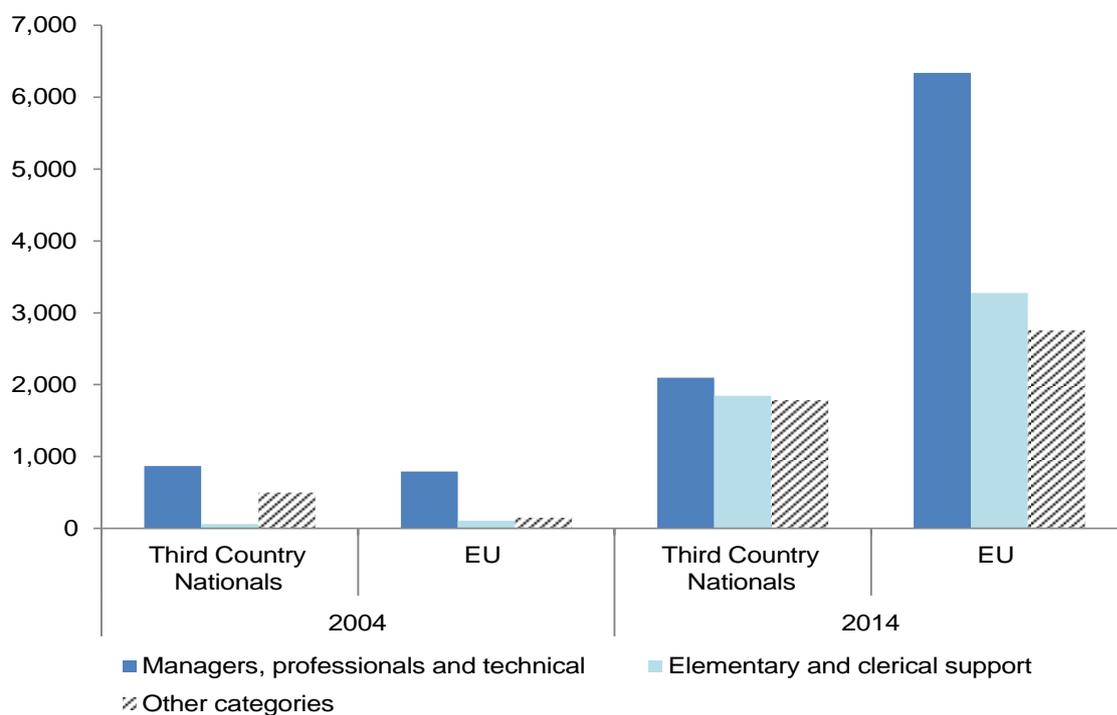


Source: Author's calculations using ETC data.

The data suggest that whereas in 2004, only 3.5% of managers, professional and technical staff were foreign, by 2014 this had risen to 12.1%. More impressively, dependence on foreign workers in elementary occupations and in clerical & support duties has risen from 0.5% to 14.1% during the same decade. Reliance on migrants in the other occupational categories (such as plant and machine operators, service and sales workers) has risen from 1.1% in 2004 to 6.5% in 2014. Thus, whereas demand for foreign workers has grown in all categories, it is clear that employers' labour demand was focused in particular on the high-end (mostly managers) and the low-end of the market. It is again important to emphasise here that these trends need to be interpreted with caution. The number of Maltese engaged in managerial, professional and technical jobs has risen from more than 46,000 in 2004 to more than 61,000 a decade later. The rising dependence on foreign workers in these high-end occupations has occurred despite a rise of nearly a third in the number of Maltese engaged in these activities. Conversely the number of Maltese in elementary occupations and in clerical & support duties has declined in both relative and absolute terms.

Chart 8

Foreign workers by occupation



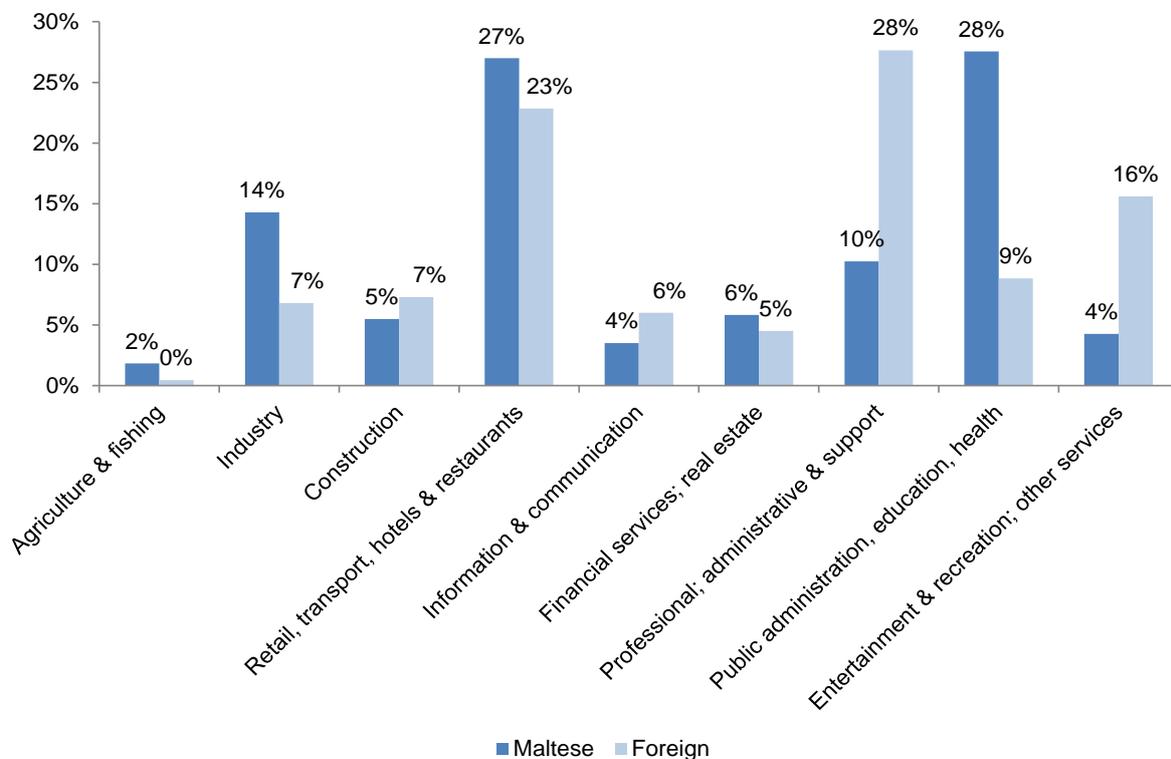
Source: Author's calculations using ETC data.

In the local debate on migration, there is the impression that third-country nationals are mostly employed in low-skilled occupations. Administrative data, shown in Chart 8, indicate a

different picture. Around 36.5% of third-country nationals are in highly-skilled jobs. The number of EU nationals employed in elementary occupations and in clerical & support duties is double that of third-country nationals. This notwithstanding the data show that whereas in 2004 most third-country nationals were in higher-end occupations, the balance has now tilted sharply towards less-skilled categories. Whereas nearly 50% of the rise in EU nationals working in Malta involved managers, professionals and technical staff, less than 30% of the rise in third-country nationals was in these categories.

Chart 9

Distribution of workforce by nationality and sector



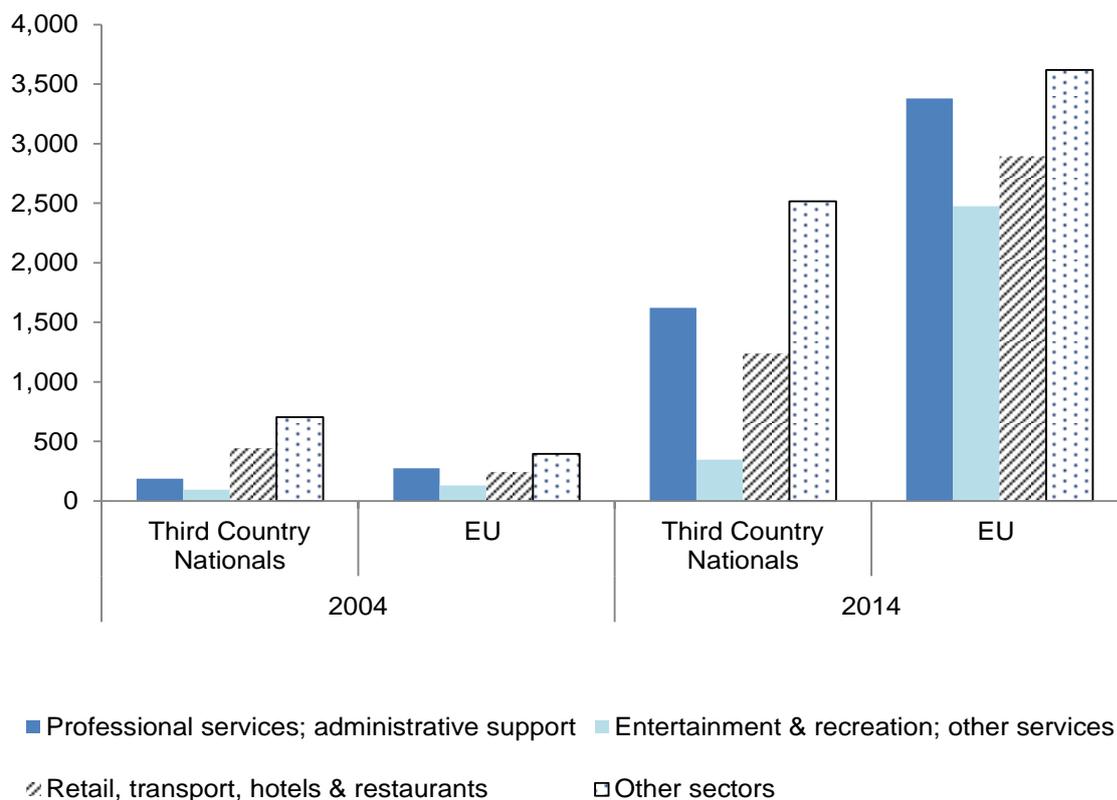
Source: Author's calculations using ETC data.

The sectoral composition of the foreign workforce differs significantly from that of native workers (see Chart 9). Industry and the public sector are dominated by the Maltese, whereas foreign workers are more likely to be employed in the remote gaming sector, professional services and administrative support activities. Foreign employees are also relatively more active in the construction and in the information & communication sectors. Another sector where there is a considerable degree of reliance on migrant workers is that of hotels & restaurants. Taken together, three sectors, namely entertainment & recreation (or remote

gaming), hotels & restaurants, and professional services & administrative support accounted for nearly half of all foreign employees in 2014. Dependence on migrant workers amounts to nearly 29% of the entire workforce in entertainment & recreation, 23% in professional services & administrative support, 21% in hotels & restaurants, 18% in real estate, 16% in information & communication and 13% in construction. Once again it is important to emphasise that the fact that a sector is heavily dependent on foreign workers should not be misconstrued as evidence that these have elbowed out Maltese employees. For instance, the rise in migrant workers amounted to half of the increase in the full-time workforce in entertainment & recreation during the decade to 2014 (see Chart 10). In professional services & administrative support, the growth of the Maltese workforce constituted nearly two-thirds of the total increase. In contrast, in sectors like hotels & restaurants, construction and industry there is evidence that the growth in employment since the downturn of 2009 was mainly taken up by migrant workers.

Chart 10

Foreign workers by sector and nationality



Source: Author's calculations using ETC data.

Contrary to the impression in the local debate on migration, the recent rise in the foreign workforce in construction is not driven by third-country nationals. The latter had reached a peak of nearly 950 in 2008, but in 2014 were down to close to 760. Conversely the number of EU nationals working in the Maltese construction sector more than doubled during the same time to approximately 560 full-timers. A similar development happened in the manufacturing sector, where the number of EU nationals in 2014 was larger than that of third-country nationals. About 37% of the rise in the number of third-country nationals working in Malta observed between 2009 and 2014 was in the administrative support sector. The second-largest contributor was the health and social care sector, at 13% of the total rise, while another 11% was generated by retail trade. As regards EU nationals, the growth in employment was less concentrated, with the three top sectors amounting to just 44% of the entire growth (as against 61% for third-country nationals). Administrative support services accounted for 18% of the post-recession increase, while the entertainment & recreation sector constituted 15%. The professional services and the hotel & restaurants sector both each made up 11% of the rise in the EU workforce since 2009. If instead one looked at the increase since 2004, the entertainment & recreation and the administrative support services would switch places and relative shares.

What is the contribution of foreign workers to Malta's economy?

Standard theory posits that immigrants increase the supply of labour and lower wage growth, and since in the short run the capital stock cannot adjust, there is a fall in labour productivity. Recent Maltese data seem to display these developments. The capital-output ratio has fallen from 1.9 in 2010 to 1.8 in 2014, whereas in the previous four years it had remained stable. Real labour productivity (i.e. real GDP per person employed) declined by 2.9% between 2010 and 2014, as against a 1.7% rise in the previous four years. Average wage growth slowed down to 8.8% between 2010 and 2014, as against 16.2% in the previous four years. However one has to note that during those previous four years, there also was a substantial rise in foreign workers in Malta, in relative terms as important as in the last four years. This suggests that one must interpret these trends with caution.

Moreover as Rolfe et al (2013) suggests, the standard theory ignores three channels through which foreign workers could raise productivity. Firstly, these workers enhance the human capital stock and bring with them new skills and knowledge which could be shared with the local workforce. Secondly, foreign workers may increase the incentive for local workers to acquire new skills, in order to compete with them. Thirdly they can influence the way

businesses operate and allow them to take advantage of new production technologies. There is another additional element that Rolfe et al does not distinguish, but which is probably very true for the Maltese case. The availability of skilled foreign workers enables the development of new industries, which otherwise would be bottlenecked by skills shortages. The development of these new sectors, in turn, creates incentives for local workers to acquire the required skills and leads to a more diversified and skilled economy. For instance, the absence of chemical engineers would have raised costs and severely hampered the emerging pharmaceutical sector in Malta, whilst very few Maltese would have wanted to study chemical engineering in the absence of successful employers on the islands. This chicken and egg problem could only be resolved by the attraction of foreign chemical engineers. This enabled companies to grow, and in turn led to higher local interest in the jobs offered by this industry. The growth of this sector then resulted in higher economic diversification, which as Grech (2015b) argues reduces the impact of industry-specific shocks and hence dampens cyclical fluctuations.

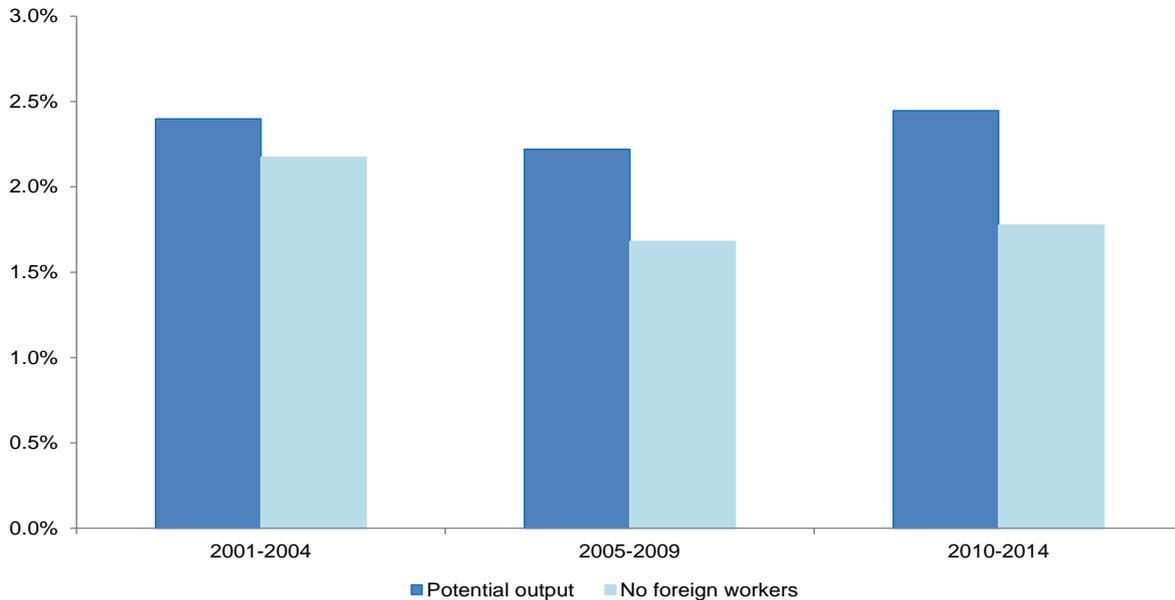
Unfortunately as indicated by the Migration Advisory Committee (2012), while it is clear that there are dynamic impacts of skilled immigration on productivity and innovation, these are “elusive to measure”. To be able to assess these effects, one needs to study the characteristics of migrants (e.g. their skill level, their language abilities) and also their impact on sector specific productivity.⁵ In Malta’s case, NSO data suggest that migrants are more likely than non-migrants to possess tertiary qualifications (39% vs. 23%) and to be engaged in highly skilled non-manual occupations (47% vs 40%). However the absence of sectoral deflators makes it impossible to assess the possible impact of these characteristics on sector-specific productivity. As a result we can only conduct a simple exercise whereby we assume that migrants have the same labour productivity as Maltese workers.

On this basis we compute what gross value added in each sector would have been in the absence of any foreign workers from 2000 onwards and then compute the resulting nominal and real GDP growth. Note that in the absence of sectoral deflators, we have had to assume that deflators would not have changed as a result of the reduced relative size of certain sectors where foreign workers are prevalent (such as entertainment & recreation and hotels & restaurants). Besides this important caveat, one has to also consider that here we are assuming that firms would not have been able to respond to higher demand by, for example, employing Maltese workers more, improving productivity or using more capital instead of labour. That said the impact on production of these options would have been somewhat limited in the short term and would have raised costs.

⁵ Department for Business, Innovation & Skills (2015) provides a good review of these studies.

Chart 11

Potential Output Growth with and without foreign workers (annual average)



Source: Author's calculations

Using these estimates of GDP growth we carried out an exercise to estimate the impact of the rise in economic migration on potential output. The framework used is that described in Micallef and Grech (2014), namely a constant-returns-to-scale Cobb-Douglas production function. The contribution of total factor productivity and investment are assumed to be unaffected by the absence of the foreign workers, implying increased per capita investment and productivity. As can be seen from Chart 11, the contribution to potential growth of foreign workers under these assumptions is increasing over time, from 0.2 percentage points in the pre-accession period to 0.5 percentage points in the post-accession period till the economic downturn. In the following five years (2010 to 2014), despite the doubling of the relative share of foreign workers in total employment, their relative contribution to potential growth is estimated to have risen to just over 0.6 percentage points. This is slightly below the contribution of 0.8 percentage points which Micallef (2015) attributes to the rise in female participation during the same period. These two factors, increased female participation and the rise in the foreign workforce, between them explain nearly the whole of the contribution to potential growth attributed to the labour input during this period.

Besides the supply side impact of foreign workers, another important consideration is their effect on demand for labour. For instance, Gordon, Travers & Whitehead (2007) note that in London the increased availability of migrants in the lowest paid segment of the labour market

encouraged job growth in these occupations, but earnings suffered. In the case of Malta, it is likelier that the influx of foreign workers at the lower end of the market, by keeping wages down, may have made it less attractive for young Maltese to leave education.

Table 1: Rise in average wages and in the share of foreign workers

	Rise in average wage			Rise in share of foreign workforce		
	2002-2006	2006-2010	2010-2014	2002-2006	2006-2010	2010-2014
Agriculture & fishing	-3%	13%	-4%	0.7%	0.1%	1.5%
Industry (except manufacturing)	16%	19%	10%	0.2%	0.6%	1.9%
Manufacturing	11%	9%	8%	1.7%	1.3%	1.0%
Construction	10%	15%	4%	4.0%	-1.2%	5.2%
Retail, transport, hotels	5%	13%	8%	1.3%	1.6%	4.8%
Information & communication	29%	-8%	17%	1.3%	3.3%	9.7%
Financial services	20%	-3%	18%	0.6%	1.6%	3.9%
Real estate	19%	10%	48%	1.0%	0.9%	12.9%
Professional, support services	15%	10%	14%	1.8%	3.5%	12.8%
Public service, education, health	4%	19%	8%	0.3%	0.8%	1.7%
Entertainment & recreation; other	36%	19%	-11%	6.6%	9.9%	7.8%
Total	10%	13%	10%	1.6%	1.9%	5.0%

Source: Author's calculations using Eurostat and ETC data.

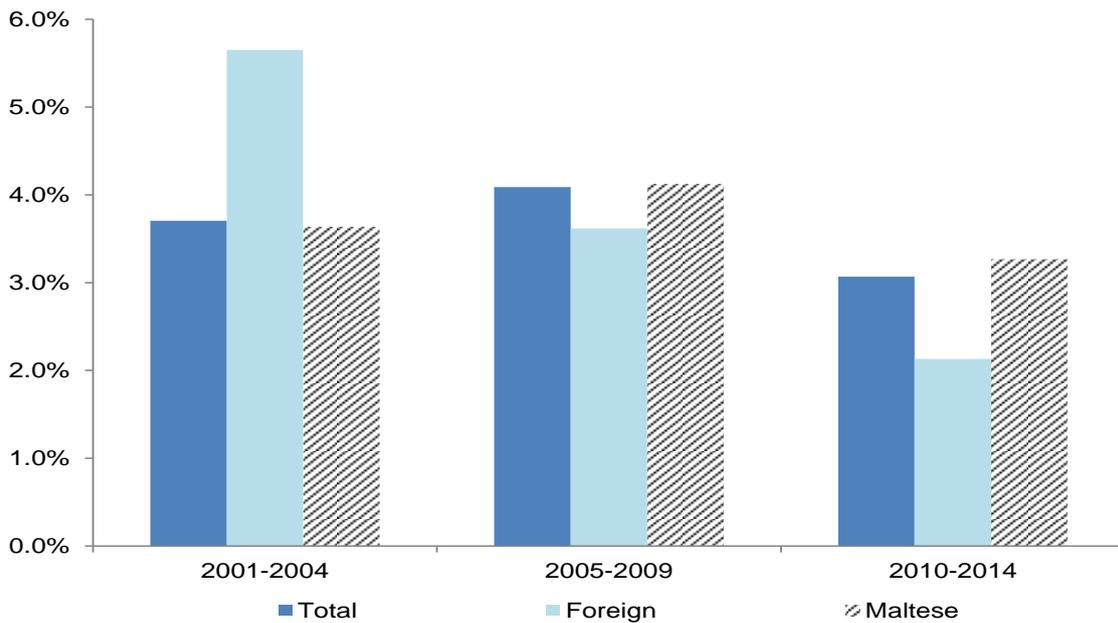
The evidence from Maltese data is mixed (see Table 1). While the rise in the share of foreign workers between 2010 and 2014 coincided with a drop in wage growth, the latter is similar to that experienced between 2002 and 2006, when the rise in foreign workers was much more muted. Sectoral developments are also difficult to interpret. For instance, the large rise in the share of foreign workers in construction between 2010 and 2014 coincided with a decline in wage growth in the sector. However when there had been a similar rise in foreign employment between 2002 and 2006, wage growth was much higher than it was between 2010 and 2014. Similarly one could point out at the recent slowdown in wage growth in retail, transport, hotels & restaurants and argue that it is due to the strong influx of foreign workers. Then again, the rise in wages between 2010 and 2014 was nearly double that seen between 2002 and 2006, when the increase in foreign workers had been smaller. In certain sectors, such as financial services, information & communication, real estate and professional & administrative support services a large net inflow of foreigners between 2010 and 2014 has coincided with a significant rise in wage growth.

These different trends make it hard to understand whether the increased availability of workers dampened wage claims. There is evidence that in some sectors foreign employees may have acted as substitutes for local workers, e.g. in construction and hotels &

restaurants, but it is harder to decipher whether in the absence of foreign workers firms would have been able to induce more Maltese workers. In some sectors, like professional & administrative support services and in information & communication, the absence of foreigners could have resulted in too high a shortage of labour, and higher demand would have been very difficult to accommodate by simply raising wages to attract more effort.

Chart 12

**Average annual growth in emoluments
by nationality**



Source: Author's calculations using Inland Revenue administrative data.

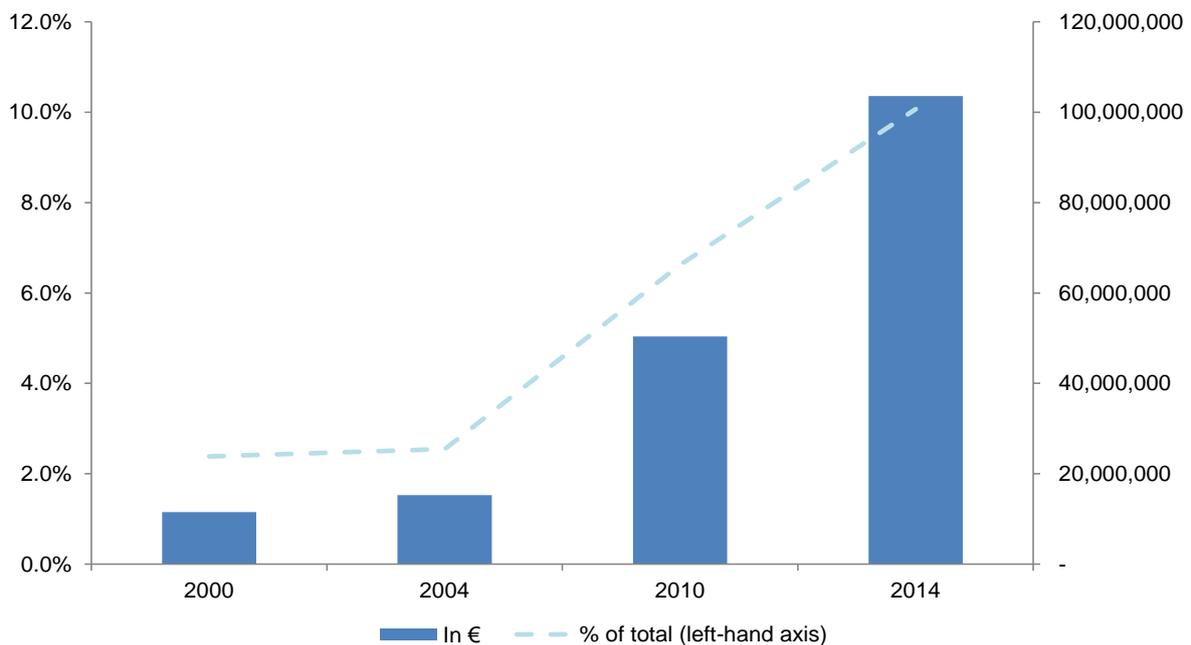
Unfortunately data on wages broken down by sector and by nationality are not available. However aggregate administrative data on emoluments declared for tax purposes by foreign and Maltese employees were made available for this study. These data, shown in Chart 12, suggest that growth in per capita emoluments of foreign workers declined significantly over the period 2000 to 2014. In the period prior to EU accession, on average there was a 5.7% rise in per capita emoluments of foreign workers, as against 3.6% for Maltese employees. In the following five years, the annual average growth observed amongst Maltese workers exceeded that of foreign employees. While the annual average growth in per capita emoluments declined in the period 2010 to 2014 for Maltese employees (3.3% vs 4.1%), the decline was much more pronounced amongst foreign workers (2.1% vs 3.6%).

While the trends emerging from these data are interesting, they need to be interpreted with caution. In the preceding section, we noted how despite that the majority of foreigners are

engaged in managerial, professional and technical occupations, since 2004 there has been a steady increase in the number engaged in elementary jobs. This implies that a significant component in the slowdown in the growth of per capita emoluments could reflect this growing share of lower-paid occupations. Similarly the data for Maltese workers could reflect the increasing proportion of part-time employment, particularly amongst women. It is very difficult in the absence of access to micro data to be able to account for these factors.

Chart 13

Income tax and national insurance contributions paid by foreign workers



Source: Author’s calculations using Inland Revenue administrative data.

A much more tractable question is the extent of the contribution that foreign workers make to the direct tax intake. Chart 13 shows that since EU accession the amount of income tax and national insurance contributions paid by foreign workers increased from €15.3 million to €103.6 million in 2014. Whereas in 2000, revenue from foreign workers accounted for just 2.4% of personal income tax and national insurance contributions, by 2014 this share had risen to 10.1%. Administrative data, in fact, suggest that the amount of revenue collected from foreign workers increased by 9 times during the period 2000 to 2014, whereas that from Maltese workers doubled. This suggests that in addition to their significant contribution towards economic growth, foreign workers have also contributed to improve public finances.

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